Claims

What is claimed is:

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1.   A method of accessing data on a storage medium of a data storage device comprising:

determining a file to be accessed based on a directory maintained by a host processor connected with the data storage device;

finding from a file system on the storage medium one or more locations on the storage

10   medium for data in the file to be accessed;

compiling a file location linked list based on the one or more locations on the storage medium for data in the file to be accessed; and

sending a download linked list command and the file location linked list from the host to the data storage device.

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2.   The method of claim 1, wherein compiling the file location linked list comprises arranging entries in the file location linked list based on a Logical Block Address (LBA) for the one or more locations on the storage medium for data in the file to be accessed.

20   3.   The method of claim 1, further comprising sending a file access command to the data storage device.

4.   The method of claim 3, wherein the file access command is a read command.

5.   The method of claim 4, wherein the data storage device accesses data on the storage medium

by:

5   receiving the download linked list command and the file location linked list from the host;

receiving the read command;

reading data from a number of sectors of the storage medium of the data storage device

indicated in the file location linked list beginning at a Logical Block Address (LBA)

indicated in the file location linked list; and

10   updating a position counter based on a number of sectors read.

6.   The method of claim 5, further comprising requesting a new file location linked list if the

position counter exceeds a warning offset value in the file location linked list.

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7.   The method of claim 3, wherein the file access command is a write command.

8.   The method of claim 7, wherein the data storage device accesses data on the storage medium

by:

20   receiving the download linked list command and the compiled linked list from the host;

receiving the write command from the host;

writing a stream of data from the host to a number of sectors of the storage medium of the

data storage device indicated in the file location linked list beginning at a Logical

Block Address (LBA) indicated in the compiled linked list; and

updating a position counter based on a number of sectors written.

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9. The method of claim 8, further comprising requesting a new file location linked list if the

position counter exceeds a warning offset value in the file location linked list.

10. The method of claim 3, wherein the file access command is a seek offset command.

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11. The method of claim 10, wherein the data storage device accesses data on the storage

medium by:

receiving the download linked list command and the compiled linked list from the host;

receiving the seek offset command from the host;

15 jumping a number of sectors of the storage medium of the data storage device indicated in the

file location linked list from a current position; and

updating a position counter based on the seek offset value.

12.   An apparatus comprising:

a data storage device having a storage medium;

a host processor communicatively connected with the data storage device; and

a memory coupled with and readable by the processor and having stored therein a series of

5   instruction that, when executed by the processor, causes the processor to determine a

file to be accessed based on a directory maintained by the host processor, find from a

file system on the storage medium one or more locations on the storage medium for

data in the file to be accessed, compile a file location linked list based on the one or

more locations on the storage medium for data in the file to be accessed, and send a

10   download linked list command and the file location linked list to the data storage

device.

13.   The apparatus of claim 12, wherein compiling the file location linked list comprises

arranging entries in the file location linked list based on a Logical Block Address (LBA) for

15   the one or more locations on the storage medium for data in the file to be accessed.

14.   The apparatus of claim 12, wherein the host processor further sends a read command to the

data storage device.

20   15.   The apparatus of claim 13, wherein the data storage device receives the download linked list

command and the file location linked list from the host processor, receives the read

command, reads data from a number of sectors of the storage medium of the data storage

device indicated in the file location linked list beginning at a Logical Block Address (LBA) indicated in the file location linked list, updates a position counter based on a number of sectors read, and requests a new file location linked list if the position counter exceeds a warning offset value in the file location linked list.

16. The apparatus of claim 12, wherein the host processor further sends a write command to the data storage device.

17. The apparatus of claim 16, wherein the data storage device receives the download linked list command and the compiled linked list from the host processor, receives the write command from the host processor, writes a stream of data from the host processor to a number of sectors of the storage medium of the data storage device indicated in the compiled linked list beginning at a Logical Block Address (LBA) indicated in the file location linked list, updates a position counter based on a number of sectors written, and requests a new file location linked list if the position counter exceeds a warning offset value in the file location linked list.

18. The apparatus of claim 12, wherein the host processor further sends a seek offset command to the data storage device.

19. The apparatus of claim 18, wherein the data storage device receives the download linked list command and the compiled linked list from the host processor, receives the seek offset

command from the host processor, jumps a number of sectors of the storage medium of the

data storage device indicated in the file location linked list from a current position, and

updates a position counter based on the seek offset value.

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20.   A data storage device comprising:

a storage medium;

a processor communicatively coupled with the storage medium and a host processor; and

a memory coupled with and readable by the processor and having stored therein a series of

5   instruction that, when executed by the processor, cause the processor to receive a

download linked list command and a file location linked list from the host processor,

the file location linked list indicating one or more Logical Block Addresses (LBAs) to

be accessed and a sector count to be accessed at each LBA.

10   21.   The data storage device of claim 20, wherein the processor, responsive to receiving a read

command, reads data from a number of sectors of the storage medium indicated in the file

location linked list beginning at a Logical Block Address (LBA) indicated in the file location

linked list, updating a position counter based on a number of sectors read, and requests a new

file location linked list if the position counter exceeds a warning offset value in the file

15   location linked list.

22.   The data storage device of claim 20, wherein the processor, responsive to receiving a write

command, writes a stream of data from the host to a number of sectors of the storage

medium indicated in the file location linked list beginning at a Logical Block Address

20   (LBA) indicated in the file location linked list, updates a position counter based on a number

of sectors written, and requests a new file location linked list if the position counter exceeds

a warning offset value in the file location linked list.

23.   The data storage device of claim 20, wherein the processor, responsive to receiving a seek

offset command, jumps a number of sectors of the storage medium indicated in the file

location linked list from a current position, and updating a position counter based on the seek

5   offset value.